THE French Consulting Committee of Hygiene recently advised the prohibition of the use of vaseline for butter in food preparations. The effects of vaseline on the system, however, seemed to require fuller examination, and Dr. Dubois has made some experiments in regard to it. Two dogs were fed exclusively on soup in which the usual fat was entirely replaced with vaseline; one of them absorbed 25 grammes of vaseline a day for ten days, the other 15 grammes (this would correspond in the case of an average man to 100 grammes and 60 grammes respectively). With this diet the animals even slightly increased in weight. Their general state was good: there was no loss of appetite, nor vomiting, nor diarrhœa. In general it may be said that the carburets of hydrogen forming vaseline, though they favour neither oxidation nor saponification like fats, are readily tolerated in the alimentary canal, at least in the case of dogs. Further experiments will show if a prolonged use of the substance is equally innocuous.

IT is estimated by the Marquis de Nadaillac (*La Nature*), that Europeans can endure temperatures as widely apart as 130° C. at least. Thus, on January 25, 1882, a temperature of − 65° C. was recorded on board the *Varna* and *Dijmphna*, when blocked by ice in the Sea of Kara, east of the Straits of Waigatz. On the other hand, M. Duveyrier, in the country of the Touaregs, in Central Africa, has seen the thermometer rise to 67°·7 C.

A RECENT number of *Globus* contains an article by Prof. Nehring, on an interesting prehistoric discovery made in the neighbourhood of Madgeburg. At the village of Westeregeln, between that city and Halberstadt, in the course of some work the labourers came on the remains of an ancient grave, containing parts of the skeleton of an unburned human body, near which were about 112 bored dogs' teeth, two decorated shells of a river shell-fish now only found in Southern Europe, the *Unio sinuatus*: two pieces of an easily-burnt resin, the remains of one or more clay vessels, and a small highly-oxidised bronze ring, which appears to have been used as a finger ornament. The teeth, from their formation, must have been collected from twenty dogs at least, and they were all bored through the root portion, and were evidently meant to be hung on a string. With reference to the shell, it is noticeable that here and there in the Rhine provinces similar shells are found with Roman remains. Dr. Nehring is inclined to look for an explanation of this circumstance rather to an importation from Southern Europe than to the theory that the *Unio sinuatus* has died out since the Roman period in the Rhine provinces. Ornaments of the teeth of Carnivora for the neck, waist, arms, &c., have been found in prehistoric mounds or graves elsewhere in Germany; and even now they are in use for a similar purpose amongst certain primitive peoples. The Igorrotos of Luzon use them for necklets and earrings; so also do the inhabitants of the islands in Torres Straits.

AT the annual meeting of the London Sanitary Protection Association the Report stated that the number of members is now over 1000, and the total number of inspections made during the year 1264; a large number having been made in the suburbs of London and several in the country, including that of Eton College and other large public institutions. Unfortunately the general character of the houses inspected was as insanitary as ever, only 5 per cent. being found in perfect order, and 9·5 per cent. in fairly good order; whilst in 60 per cent. foul air was escaping directly into the house, and in 24 per cent. sewage was partly retained underground by leakage or choking of pipes.

DR. SCHLIEMANN, who has been busy at Berlin for the last few days arranging in the new Ethnological Museum the fruits of his recent excavations, intends to return to Athens shortly. The doctor promises that Berlin shall be the ultimate inheritor of all his archæological treasures.

A TELEGRAM from Catania announces Mount Etna to be in a state of eruption. Cinders and stones are being continually thrown up, and it is supposed that lava is coming out of the crater, but as it is covered by a dense mist no proper observations can be taken. Slight shocks of earthquake have been felt at the foot of the mountain.

A VIOLENT shock of earthquake was felt at 7.30 on Saturday morning at Cosenza. Several houses were thrown down. One person was killed.

THE additions to the Zoological Society's Gardens during the past week include a Patas Monkey (*Cercopithecus patas* ♀) from West Africa, presented by Master Eric Blind; a Toque Monkey (*Macacus pileatus*) from Ceylon, presented by Mr. C. Brown; a Blue and Yellow Macaw (*Ara ararauna*) from South America, presented by Lieut. W. H. Duffin, King's Own Regiment; a Serval (*Felis serval* ♂), a White-tailed Ichneumon (*Herpestes albicauda*) from West Africa, presented by Mr. F. J. Jackson; a Canada Goose (*Bernicla canadensis*) from Canada, presented by Mr. J. E. Kelsall; a Rough-billed Pelican (*Pelecanus trachyrhynchus*) from Mexico, a Hutchins's Goose (*Bernicla hutchinsi*), from Arctic America, purchased.

OUR ASTRONOMICAL COLUMN

LUNAR INEQUALITIES DUE TO THE ACTION OF JUPITER.—Some years ago Prof. Newcomb, discussing certain discordances between the observed and tabular places of the moon, was led to the conclusion that there existed a hitherto undetected inequality with a coefficient of 1″·5 in the longitude, and having a period of about 17 years as regards its effects on the eccentricity and longitude of the perigee. Shortly afterwards Mr. Neison announced that he had found in the action of Jupiter the explanation of this inequality. Using Delaunay's notation, his expression for the inequalities in longitude is—

$$\begin{aligned}\delta V = &- 1''\cdot163 \sin(2h + 2g + l - 2h'' - 2g'' - 2l'') \\ &+ 2''\cdot200 \sin(2h + 2g - 2h'' - 2g'' - 2l'').\end{aligned}$$

Now, the coefficient of the second of these inequalities is, theoretically, a quantity one order higher than that of the first; the first having the simple power of the eccentricity as factor, while the second has the square. Hence we should naturally expect to find the latter coefficient the smaller. On the grounds, therefore, that there is reason to think that Mr. Neison's value of this coefficient is possibly too large, Mr. G. W. Hill has investigated the lunar inequalities arising from the action of Jupiter, and has computed afresh the values of the coefficients of the resulting perturbations in longitude. His final result is—

$$\begin{aligned}\delta V = &- 0''\cdot903 \sin(2h + 2g + l - 2h'' - 2g'' - 2l'') \\ &+ 0'\cdot209 \sin(2h + 2g - 2h'' - 2g'' - 2l'') \\ &- 0''\cdot118 \sin(l - 2h' - 2g' - 2l' + 2h'' + 2g'' + 2l'').\end{aligned}$$

It will be seen that the coefficient of the second term is only about one-tenth of that found by Mr. Neison. It is not possible at present to determine the cause of this discordance, as Mr. Neison has not published the details of his investigation. It is to be hoped that he will now do so, in order to afford the means of deciding this interesting matter.

SPECTROSCOPIC DETERMINATION OF THE MOTION OF THE SOLAR SYSTEM IN SPACE.—The *Astronomische Nachrichten*, No. 2714, contains a brief note by Herr Hans Homann, giving the result of a discussion he has recently made of the spectroscopic observations of the motions of stars in the line of sight made at the Royal Observatory, Greenwich. He finds the position of the apex of the solar motion as derived from these to be R.A. 320°·1, Decl. 41°·2 N., and the speed of translation to be 39·3 ± 4·3 kilometres per second. He has likewise discussed the similar observations made by Dr. Huggins, and at the Temple Observatory, Rugby, by Mr. Seabroke, although these two latter series embraced too few stars, and these insufficiently observed to furnish adequate grounds for any satisfactory conclusions. The results derived from these three series, though differing very considerably from each other, yet show a certain rough correspondence which was perhaps all that could be expected,

and Herr Homann considers that the velocity of translation may be taken as not greatly differing from 30 kilometres a second. The results from Dr. Huggins's and Mr. Seabroke's measures are as follows:—

Observer	Velocity of Translation km. per sec.	Apex of Solar Motion
Huggins ...	48·5 ± 23·1 ...	R.A. 309°·5, Decl. 69°·7 N.
Seabroke ...	24·5 ± 15·8 ...	R.A. 278°·8, Decl. 13°·6 N.

These results all differ very considerably from those obtained by Struve, Airy, Galloway, and others, from a consideration of the proper motions of stars as *observed with the telescope, i.e.* in a direction at right angles to the line of sight, the most probable mean value of the co-ordinates of the apex from all these discussions being about R.A. 260°, Decl. 35° N., whilst Struve found the velocity of translation to be about 7 kilometres per second. This speed was, however, based upon the assumption that the average annual parallax of stars of the first magnitude is about 0″·25, and it should be borne in mind that Airy obtained (*Mem. R.A.S.*, vol. xxviii. p. 161) from the discussion of 113 stars with large proper motions a speed of translation nearly six times as large as that of Struve. Plummer also (*Mem. R.A.S.*, vol. xlvii. p. 341), from a rediscussion of Galloway's data, found for the co-ordinates of the apex R.A. 276° 8′, and Decl. 26° 31′ N., a result which differs considerably from the earlier ones above referred to, and in the direction of greater accordance with those obtained by the spectroscopic method. It may, however, be doubted whether the spectroscopic results are yet ripe for satisfactory discussion; the preliminary investigation undertaken by Plummer some time ago gave distinctly disappointing results, and, so recently as last May, Maunder (*Observatory*, vol. viii. p. 165) stated that but "some fifty stars in all had been observed a sufficient number of times for us to be able to deduce their speed to the nearest ten miles per second." He considered, however, that the results, so far as they went, "indicated a motion towards α Aquarii rather than towards any point in Hercules." This would agree well with Herr Homann's calculations in R.A., but not in Decl.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1886 *MARCH* 14-20

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on March 14

Sun rises, 6h. 17m.; souths, 12h. 9m. 19·2s.; sets, 18h. 1m.; decl. on meridian, 2° 26′ S.: Sidereal Time at Sunset, 5h. 30m.

Moon (one day after First Quarter) rises, 11h. 20m.; souths, 19h. 14m.; sets, 3h. 6m.*; decl. on meridian, 18° 14′ N.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian ° ′
Mercury ...	6 39 ...	13 6 ...	19 33 ...	4 33 N.
Venus	4 40 ...	10 3 ...	15 26 ...	7 57 S.
Mars	16 35 ...	23 32 ...	6 29* ...	10 27 N.
Jupiter... ...	18 37* ...	0 44 ...	6 51 ...	0 37 N.
Saturn... ...	10 26 ...	18 38 ...	2 50* ...	22 47 N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Variable-Stars

Star	R.A. h. m.	Decl. ° ′		h. m.	
U Cephei	0 52·2 ...	81 16 N. ...	Mar. 18,	19 55	*m*
Algol	3 0·8 ...	40 31 N. ...	,, 18,	4 18	*m*
ζ Geminorum ...	6 57·4 ...	20 44 N. ...	,, 15,	0 0	*M*
			,, 20,	4 50	*m*
S Cancri	8 37·4 ...	19 27 N. ...	,, 17,	1 10	*m*
T Ursæ Majoris ...	12 31·2 ...	60 7 N. ...	,, 14,		*M*
δ Libræ	14 54·9 ...	8 4 S. ...	,, 18,	21 44	*m*
U Coronæ	15 13·6 ...	32 4 N. ...	,, 16,	4 46	*m*
W Scorpii	16 5·1 ...	19 50 S. ...	,, 16,		*M*
U Ophiuchi... ...	17 10·8 ...	1 20 N. ...	,, 14,	23 15	*m*
		and at intervals of		20 8	
X Sagittarii... ...	17 40·4 ...	27 47 S. ..	Mar. 17,	0 0	*m*
			,, 19,	21 40	*M*
W Sagittarii ...	17 57·8 ...	29 35 S. ...	,, 18,	21 30	*m*
β Lyræ	18 45·9 ...	33 14 N. ...	,, 18,	21 40	m_2
η Aquilæ	19 46·7 ...	0 7 N. ...	,, 17,	19 10	*M*
T Cephei	21 8·0 ...	68 2 N. ...	,, 14,		*M*
δ Cephei	22 24·9 ...	57 50 N. ...	,, 19,	2 20	*M*

M signifies maximum; *m* minimum; m_2 secondary minimum.

Occultations of Stars by the Moon (visible at Greenwich)

March	Star	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to right for inverted image ° °
14 ...	B.A.C. 1930 ...	6½ ...	0 40 ...	1 28 ...	152 279
15 ...	1 Cancri	6 ...	22 15 ...	23 12 ...	70 327
18 ...	37 Sextantis ...	6 ...	17 25 ...	18 17 ...	11 240
20 ...	B.A.C. 4043 ...	6½ ...	1 38 ...	2 34 ...	119 239

March	h.	
15 ...	6 ...	Mercury at least distance from the Sun.
20 ...	... ...	Sun in equator.
20 ...	8 ...	Jupiter in conjunction with and 0° 13′ north of the Moon.

GEOGRAPHICAL EDUCATION AND NATURAL SCIENCE [1]

ONE of my claims to address you on the subject of geographical education is that I have been a traveller. In my opinion nothing can better bring home to the mind the value of good geographical instruction, or make more keenly felt the disadvantages of the lack of it, than a scientific journey round the world. It is naturally the scientific side of geography which interests me most; and it is on the importance and prospects of physical geography as a subject of education that I have now to speak.

To the naturalist a knowledge of physical geography is becoming yearly more and more essential. The geographical distribution of plants and animals is one of the most important and fascinating of all the branches of his subject, presenting an immense field for research, full of problems of the utmost interest. Such problems can only be approached, with hope of success in elucidating them, with a clear comprehension of the principles of physical geography, and a power of entering into the utmost details whenever required. The distribution of organisms, and often their very forms and existence, are the result of the relative positions of the various climatic and other physical barriers on the earth's surface. On the land surfaces, where these barriers present most sharply-defined and serious obstacles to migration, the complexity of the distribution of the terrestrial fauna and flora is most remarkable. On the shores, where the barriers are less complete, the isolation and geographical restriction of the littoral fauna and flora is less developed. Whilst in the ocean, with no absolute land-barriers, the pelagic fauna shows little more than a distribution of animal and vegetable forms, according to climatic zones. In the depths of the ocean, which the effects of climate do not reach, the distribution of the animal inhabitants almost approaches universality.

It is, however, scarcely necessary to insist on the especial importance of the study of physical geography as one of the bases required for the scientific pursuit of zoology; and I am sure no one will be more ready than my friend Sir Joseph Hooker, to whom our knowledge of the geographical distribution of plants, and its meaning, is so largely due, to testify to its immense importance in the case of botany. It is obvious that it is equally indispensable in the cases of geology, astronomy, and meteorology.

Far more important is the question, Ought not physical geography to form part of every liberal education, as being a subject specially adapted for purposes of general learning, and as the only true basis on which can be founded a knowledge of what is termed political geography? Political geography may be regarded to some extent as the geographical distribution of mankind; and its various features of importance—its boundaries, its lines of migration and commerce, its cities and battle-fields—have their positions determined by the physical conditions and conformation of the earth's surface, as much as in the case of the distribution of the lower organisms.

In Germany and Austria, and many other parts of Europe, the necessity of physical geography as a subject of general education and of higher University study seems to be thoroughly accepted. There can be little doubt that it is an excellent subject of general education. I have become more and more convinced of this from my own experience as an examiner in the subject, and especially when examining for the Public School medals of this Society.

[1] Abstract of Lecture by Prof. H. N. Moseley, F.R.S., at the Royal Geographical Society's Exhibition of Geographical Appliances, Sir Joseph Hooker, K.C.S.I., V.P.R.S., in the chair.